PROPERTY OF BOROUGH OF SCARBOROUGH

RESOURCE CENTRE

Metro/T.T.C. Rapid Transit Study

SUMMARY REPORT

Metropolitan Toronto Planning Department
Toronto Transit Commission
May 1982

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1.0 INTRODUCTION

On May 12, 1981, Metropolitan Council approved Clause 1 of Report No. 8 of the Economic Development and Planning Committee entitled "Accelerated Transit Study". That report presented terms of reference for a three phase study with two stated objectives:

1. To consider and review specific transit improvements for possible inclusion in the TTC Capital Works Program;

2. To recommend to Metropolitan Council, if necessary, amendments to the Metropolitan Official Plan to accommodate the future expansion of transit facilities within Metropolitan Toronto.

The Rapid Transit Study has been conducted jointly by staff of Metropolitan Toronto and the Toronto Transit Commission under the direction of the Technical Transportation Planning Committee. As directed by the Economic Development and Planning Committee, staff of the area municipalities have been involved in the Rapid Transit Study program, and have attended a number of review meetings during the course of the analysis. While a full consensus on all issues was not possible, it is felt that the results of the study reflect the comments and concerns of the area municipalities to the greatest extent possible.

On January 20, 1982, the Economic Development and Planning Committee considered a proposal for the Central Toronto Waterfront Intermediate Capacity Transit System (ICTS) Upon consideration of comments from the area municipalities and the TTC, the Committee decided to defer consideration of this matter pending completion of the Rapid Transit Study and directed that the Technical Transportation Planning Committee be requested to include discussion of the system-wide implications of a waterfront

ICTS line as part of the evaluation of corridor options in the study. These implications have been considered and are discussed in following sections of this report.

This report summarizes the results of the technical analysis completed to date. Detailed information on various aspects of the testing and evaluation is presented in six companion background reports:

Background Report	Title
1	Functional Design
2	Demand Analysis
3	Transit Operations Analysis
4	Land Use and Environmental Review
5	Surface Transit Improvements
6	Waterfront and Central Area Options

Some detailed aspects of the technical analysis will be completed and refined over the coming months; nevertheless, sufficient work has been completed to allow a comprehensive evaluation of the alternatives and the development of specific conclusions and recommendations.

2.0 RESULTS OF PHASES I AND II

The first phase of the study, "Identification of Issues and Options" was completed in the Spring of 1981. The major output of that phase was a comprehensive list of twenty-eight possible rapid transit alternatives. The second phase, "Preliminary Evaluation of Options", was completed in August 1981. Five criteria were developed as the basis of the preliminary evaluation:

1. Official Plan Compatibility
2. Existing and Projected Population and Employment
3. Potential Ridership on the New Facility
4. Ease of Implementation
5. Transit System Compatibility

A total of sixteen indicators were used in comparing the options with respect to the five criteria. For each indicator guidelines were prepared to assist in evaluating each option. Measures were quantitative wherever possible, but in some cases qualitative measures were necessary. The study working group, in consultation with staff of the area municipalities, reduced the comprehensive list of options to four, as follows:

1. An east-west line north of Highway 401 (along Finch or Sheppard or some combination);
2. An east-west line south of Highway 401 (within the Eglinton Corridor);
3. A radial line serving the Central Area (using some combination of the Queen and Allendale/Don Mills alignments); and,
4. Central Area circulation lines (a Waterfront line and a line on Spadina south of Bloor).

The coarse zone system and transportation networks used in the demand analysis did not provide a basis for evaluation of the Waterfront ICTS at the same level of detail as the other rapid transit options. This facility has been addressed primarily as a policy issue, although the broader system wide impacts have been considered and are documented in Background Report 6.

In addition to the rapid transit options, a Surface Transit Improvement Option was developed for analysis. This option includes consideration of a Spadina LRT facility identified for further study and significant surface transit improvements in other areas of Metro Toronto developed on the basis of 1991 travel demand estimates. This option is, in effect, the "no build" option.

3.0 FUTURE GROWTH ASSUMPTIONS AND RESULTANT TRAVEL DEMAND

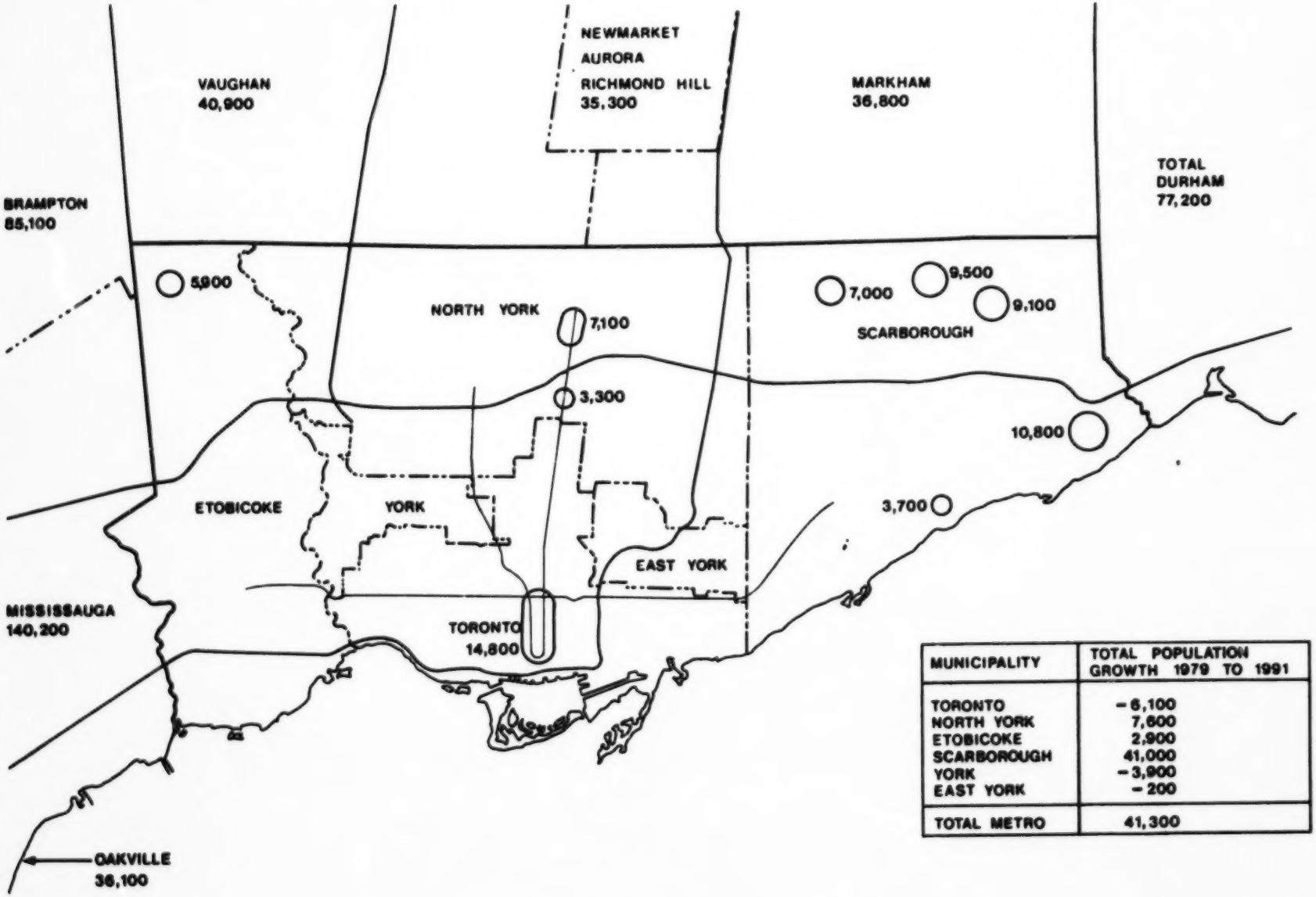
3.1 Projected Population and Employment Growth

Population and employment estimates for 1981 and 1991 were prepared in April 1981 by the Research Division of the Metro Planning Department, in consultation with staff of the area and regional municipalities, and were refined during the study proccess. Significant population and employment growth areas are shown in Exhibits 1 and 2 respectively.

As shown in Exhibit 1, estimated population growth within Metropolitan Toronto will be limited, with major increases expected only in Scarborough and in the Central Area; for Metro as a whole, population growth has been assumed to be less than 2% between 1979 and 1991. However, population growth in those parts of the surrounding regional municipalities considered in the demand analysis study area is estimated to average 53%, for a total area increase of about 16%.

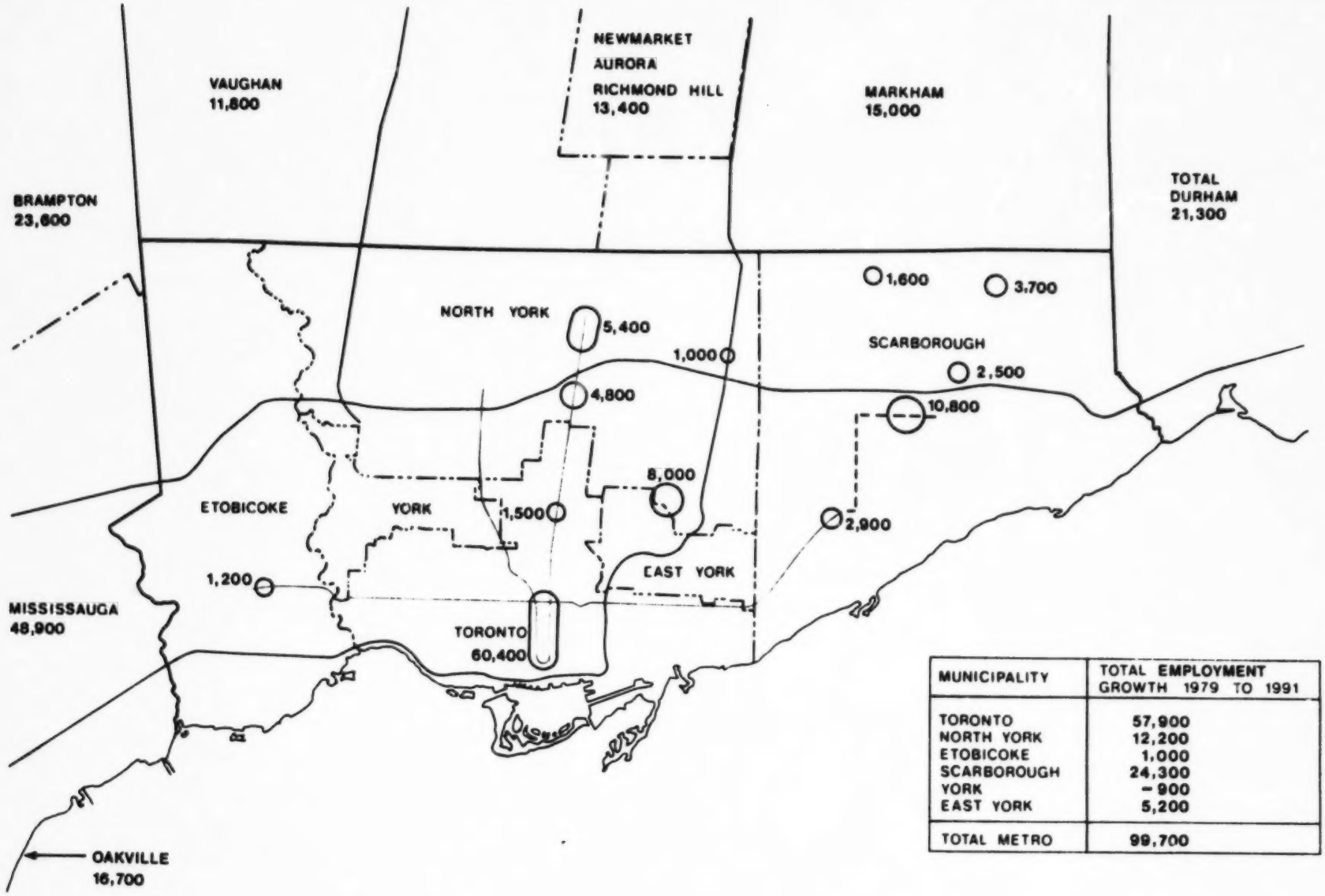
Exhibit 2 indicates a different trend with respect to projected growth in total employment to 1991. Area-wide growth is estimated to be about 17%. While the regional municipalities show a greater percentage growth than Metro (39% versus 9%), about 36% of the absolute increase will be within Metro, and more significantly, about 21% of the absolute increase is assigned to the Central Area of the City of Toronto.

Approximately 60,000 additional Central Area jobs have been assumed for 1991. A review of current construction and development proposals indicates that this estimate is feasible, although dependent to some extent on the level and timing of development in the waterfront area south of Front Street. Given the high transit modal



MUNICIPALITY	TOTAL POPULATION GROWTH 1979 TO 1991
TORONTO	-6,100
NORTH YORK	7,600
ETOBICOKE	2,900
SCARBOROUGH	41,000
YORK	-3,900
EAST YORK	-200
TOTAL METRO	41,300

EXHIBIT 1:
POPULATION GROWTH CONCENTRATIONS 1979 - 1991



MUNICIPALITY	TOTAL EMPLOYMENT GROWTH 1979 TO 1991
TORONTO	57,900
NORTH YORK	12,200
ETOBICOKE	1,000
SCARBOROUGH	24,300
YORK	- 900
EAST YORK	5,200
TOTAL METRO	99,700

EXHIBIT 2:
EMPLOYMENT GROWTH CONCENTRATIONS 1979 - 1991

split in the Central Area, the level of employment will be the major determinant of total Central Area transit ridership and, in turn, the ability of the existing transit infrastructure to accommodate the travel demands generated by the 1991 employment levels.

3.2 Travel Demand Analysis

Over the last two years, the Metro Planning Department has developed an in-house demand modelling capability, which can be used to estimate future ridership on potential additions to the transportation network, given projections of future population and employment by zones in the study area and travel behaviour relationships developed from surveys. The model development has been based largely on trip generation and employee travel surveys conducted in 1979 and 1980 supplemented by the 1971 census journey-to-work data. Emphasis was placed on modelling 24 hour home-to-work trips, with factors calculated to estimate other trip purposes and peak hour flows. A detailed description of the travel demand analysis procedure, including the results of specific model runs is presented in Background Report 2.

After completing the calibration of the model for 1979, a base case for 1991 was developed. The 1991 base case assumed few additions to the existing transit and road networks, with transit improvements being limited to the Scarborough Town Centre rapid transit line and expansion of bus lines in the few newly developing areas of Metro Toronto and areas immediately adjacent to Metro.

A comparison of the 1979 calibration and 1991 base case demand estimates is summarized by screenline and cordon in Exhibit 3. The largest growth in travel is shown to be at the Metro boundary, where an increase of about 35,000 person trips (49%) is estimated. The corresponding figures for the suburban and railway cordons are 24,000 (19%) and 26,000 (21%) respectively. With respect to transit trips, (excluding GO rail), the estimated twelve-year growth is 6,750 (129%)

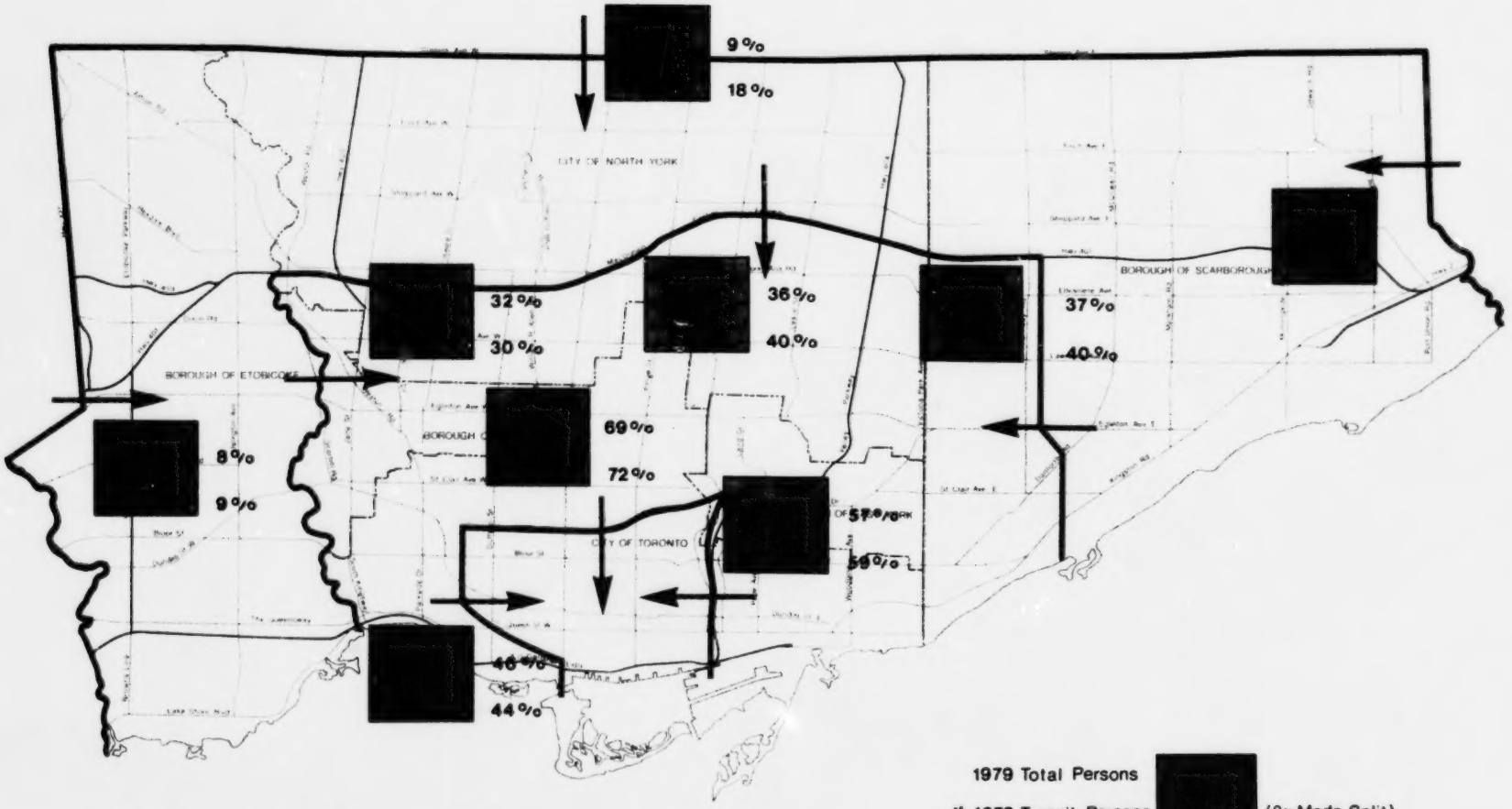


EXHIBIT 3 :
SCREENLINE COMPARISON OF 1979 AND 1991 (Base Case) SIMULATED TRAVEL VOLUMES

at the Metro boundary, 11,300 (25%) at the suburban cordon and 16,000 (20%) at the railway cordon. The growth in auto person trips is largest at the Metro boundary, estimated at 22,000 (31%) and decreases to 3,300 (8%) at the railway cordon.

Projected 1991 a.m. peak hour subway ridership is compared to 1979 simulated figures in Exhibit 4. While growth is projected for all lines, the Spadina subway is expected to experience the highest rates of growth. As discussed in Background Report 2, the total travel assigned to the rapid transit system appears reasonable, given the input assumptions and the general limitations of the travel demand model. However, significant increases in subway ridership were experienced between 1979 and 1981, particularly at peak points entering the Central Area. Appendix A includes an examination of these ridership trends and identifies possible causes of the increase. It now appears that some substantial changes in factors affecting travel patterns occurred between 1979 and 1981, which are not directly accounted for in the travel demand model. These factors were examined in a sensitivity analysis, and their estimated effects on transit usage are summarized as follows:

1. Parking Costs - The base demand estimates assume that real parking costs will remain constant. If it is assumed that parking costs rise 50% in real terms, a 10% to 11% increase in rapid transit ridership into the Central Area, and about a 7% to 8% increase in suburban rapid transit ridership would result.

2. Auto Operating Costs - The base demand estimates assume that the difference between out-of-pocket auto operating costs and transit fares will remain constant. A 25% relative increase in auto operating cost (comparable to the increase due to gasoline price increases which actually occurred between 1979 and 1981) would result in a 5% to 7.5% increase in Central Area rapid transit usage, and a 8% to 11.7% increase in suburban rapid transit usage.

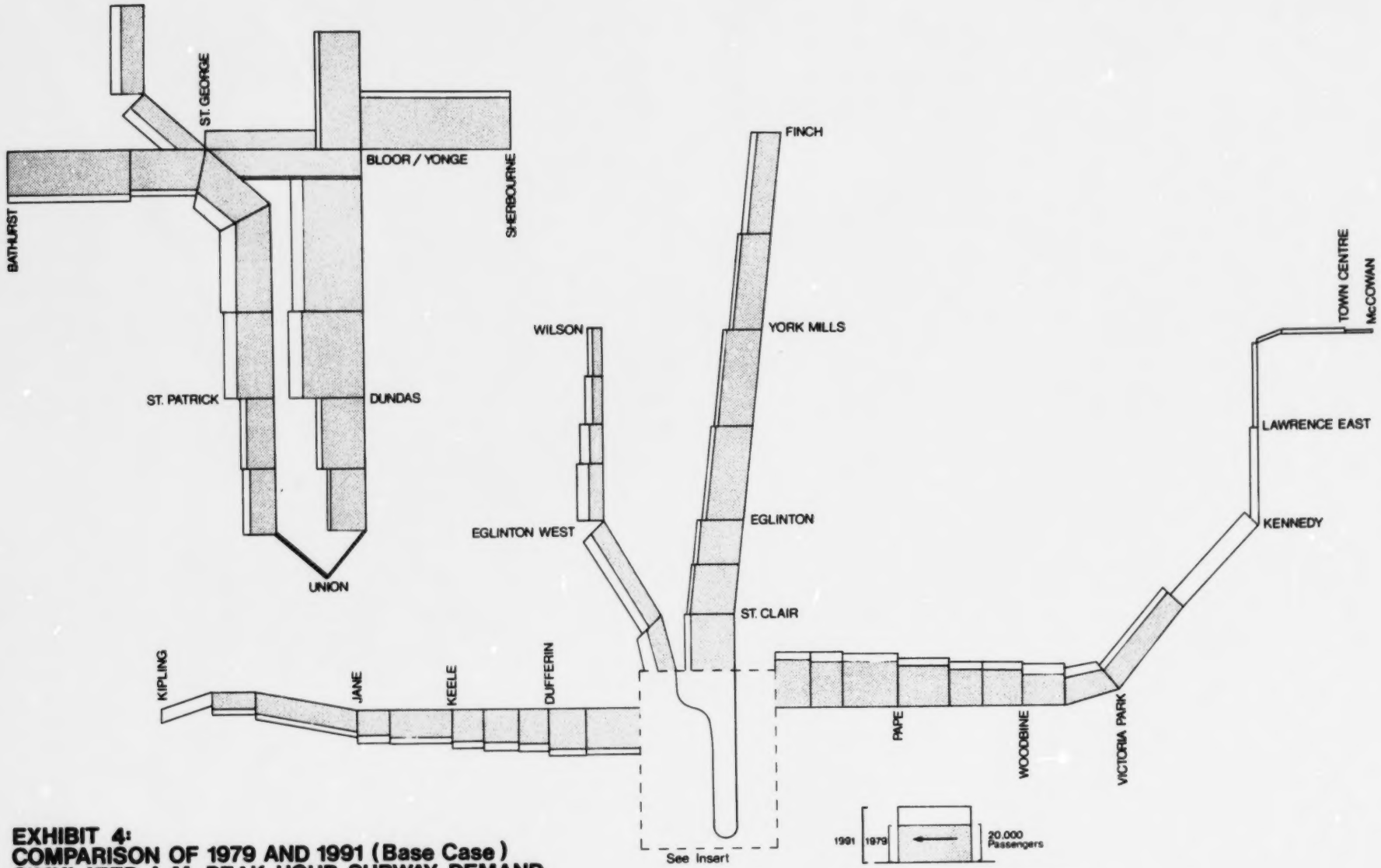


EXHIBIT 4:
COMPARISON OF 1979 AND 1991 (Base Case)
SIMULATED A.M. PEAK HOUR SUBWAY DEMAND
(Inbound to Central Area)

3. Seasonal Peaking - Peak point ridership on the existing subway system is about 15% greater during heavy season periods (typically September to March) than the twelve month average peak hour ridership, which the demand model predicts. For example, predicted 1991 peak point, peak hour demand on the Yonge line is estimated to be approximately 35,200 persons per direction. An additional 15% would raise this estimate to about 40,500.

4. Central Area Employment -As noted previously, the level and timing of Central Area employment has a major impact on transit ridership. If the optimistic estimate of about 60,000 additional Central Area jobs by 1991 is not met, the increase in peak period transit usage would decline in direct proportion. For example, if only 40,000 additional Central Area jobs are realized, the increase in rapid transit ridership into the Central Area would decline by approximately 33% and this would result in an overall decrease in rapid transit ridership into the Central Area of approximately 5% (compared to the estimates based on 60,000 additional jobs).

A number of other factors could lead to increased transit travel. These include: declining real incomes, declining parking availability, increased automobile financing costs and relative increases in surface transit average speeds (perhaps by introduction of transit priority treatments such as reserved lanes, while general road congestion increases). Alternatively, a decline in the percentage of trips made in the peak period, perhaps due to a widespread implementation of variable work hours programs, could lead to a decrease in peak hour transit usage. However, it has not been possible to quantify the effects of changes in these factors.

In summary, accounting for ridership factors which have been quantified (i.e parking costs, auto operating costs and seasonal peaking) and for changes which have occurred between 1979 and 1981, it is possible that peak hour transit ridership in general and

rapid transit ridership in particular could be in the range of 25% to 35% greater than predicted by the travel demand model. For example, the Yonge subway peak point demand could be as high as 44,000 peak hour trips, assuming a 25% increase factor. Alternatively, achievement of only 40,000 additional Central Area jobs would lower peak point demand from 44,000 to less than 42,000.

In addition to the 1991 base case demand estimates, separate model runs have been completed for the Eglinton and Radial options and for a combined Finch/Sheppard option. The Eglinton option includes an extension into Mississauga at the request of the Region of Peel, although demand estimates presented in later sections of this report reflect termination of the Eglinton option at the west Metro boundary. The coarse zone system used in this analysis, particularly in the north of Metro, did not allow separate consideration of the Sheppard and Finch options. Given the proximity of the two corridors, it is felt that future ridership would be similar for either and that the demand analysis of a single representative corridor provides an adequate basis for the comparative evaluation in this study.

4.0 ANALYSIS OF THE OPTIONS

4.1 Rapid Transit Options

Analysis of the various rapid transit options (shown in Exhibit 5) has been broken down into several functional areas. The demand analysis procedure has been described in the previous section. The functional design component is based largely on large scale mapping which records sufficient detail in general horizontal and vertical alignment to indicate a possible route for a rapid transit line within each of the corridor options. This analysis does not recommend a specific detail or configuration at this level of planning, but rather indicates the problems and opportunities of rapid transit implementation in the various corridors. Capital cost estimates have been prepared on the basis of the functional plans and are sufficiently accurate to allow a comparative evaluation of the options and to provide general forecasts of budget requirements. Included in the functional design is a brief assessment of noise and vibration impacts for the specific corridors. A detailed description of the functional design and cost analysis results is presented in Background Report 1.

The functional plans also provided the basis for analysis of local land use impacts and development opportunities, both of which are documented in Background Report 4.

A transit operations analysis was also undertaken to determine vehicle requirements (both surface and rapid transit) and annual operating costs and to identify the transit system impacts associated with each of the rapid transit options. The results of this work is documented in Background Report 3.

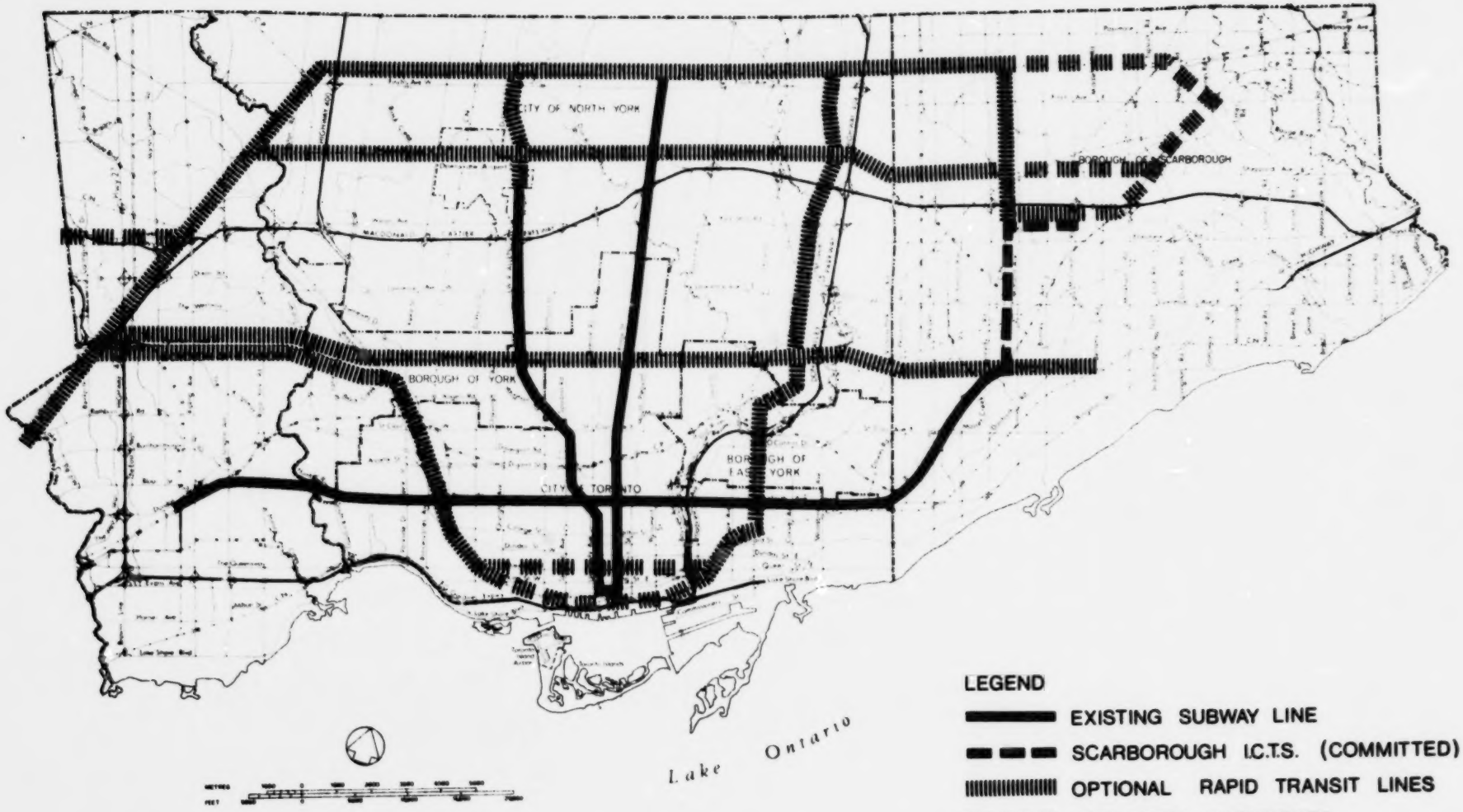


EXHIBIT 5:
RAPID TRANSIT OPTIONS

4.2 **Surface Transit Option**

The prime objective in developing the surface transit option was to assess the extent to which incremental improvements on existing rapid transit facilities and surface services can meet projected 1991 travel demands, without the level of capital expenditure required for new rapid transit construction. A key assumption in the analysis has been that surface transit will be used solely to provide capacity for identified demand, rather than to shape land use and development. A detailed description of the surface transit option is provided in Background Report 5, and candidate surface improvements are shown in Exhibit 6.

Three specific surface transit capacity requirements have been identified:

1. Intermediate Point Subway Relief- A potential method of off-loading subway congestion points is through the provision of high quality, centrally-oriented surface services from intermediate points on the subway system. Generally, these services would run express with some form of transit priority treatment (e.g. reserved lanes, signal priority) to provide some measure of relief to the subway system. The following candidate services have been identified: Sherbourne, Broadview/King, Spadina and Bay.

2. Intercept Services-An alternative means of providing rapid transit capacity relief is intercepting trips before they reach the subway. A major opportunity for this type of service would be trips originating outside Metro, the prime responsibility of GO Transit. While large increases in GO rail ridership are predicted by the demand analysis (as discussed in Section 5.3.4 of this report), increased GO bus service has not been explicity considered in this study. A potential TTC intercept service has been identified, running on reserved lanes on Don Mills Road to the Don Valley Parkway, and thence to the Central Area. This

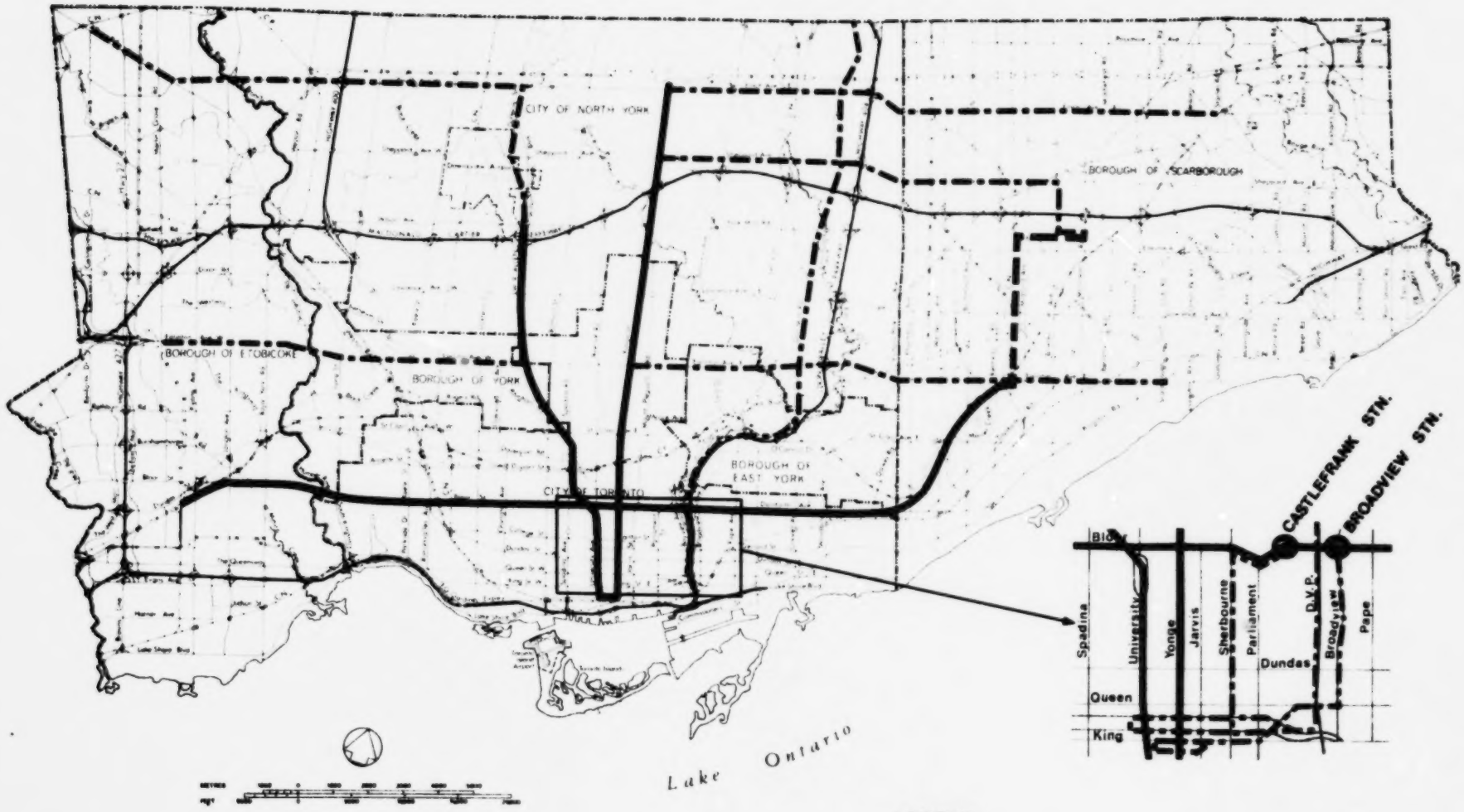


EXHIBIT 6:
OPTIONAL SURFACE TRANSIT IMPROVEMENTS

LEGEND

- EXISTING SUBWAY
- SCARBOROUGH I.C.T.S.
- OPTIONAL SURFACE IMPROVEMENTS

service and the possible need to widen Don Mills Road to accommodate the reserved lanes will be assessed in more detail during the Don Valley Corridor Transportation Study currently underway.

3. Feeder/Distribution Services-In addition to capacity relief, a number of opportunities for improved feeder services have been identified. These include: Eglinton East and West, Finch East and West and Sheppard East. It should be noted that adjustments in surface service have been made and will continue to be made to 'force feed' the Spadina subway as a means of relieving the Yonge subway.

In addition to surface transit improvements, the TTC is currently examining the possibility of increasing capacity on the Yonge/University-Spadina subway.

5.0 EVALUATION OF THE OPTIONS

5.1 Performance Indicators and Evaluation Criteria

A variety of quantitative and qualitative performance indicators have been developed for evaluation of the rapid transit options, as described under the following five broad criteria:

1. Passenger Demand - A quantitative assessment of the peak hour levels of demand expected for each option in 1991, and ridership potential of possible first stages of the options. All trips are assumed to have the same relative weight; for example, no distinction is made between centrally-oriented and suburban trips.

2. Operations

   Rapid Transit Impacts - An assessment of potential station and line congestion on existing rapid transit facilities induced by a specific option.

   Road System Impacts - A determination of the positive and negative effects of specific options on existing and future users of the road system.

3. Costs

   Capital - Total capital cost and two efficiency measures are considered: cost per mile, and cost per peak point passenger.

   Operating - Total annual operating costs for both surface and rapid transit, on existing facilities and specific options, are compared.

4. Land Use and Environment

Official Plan Compatibility- A qualitative assessment of the extent to which specific options satisfy or violate the stated policies or objectives of both the Metropolitan and area municipal official plans.

Local Impacts - A primarily qualitative assessment, with some quantitative support, which determines the positive and negative impacts on local land use, in the option corridors.

Development Opportunities - A qualitative assessment of the potential for new development and redevelopment induced by a rapid transit facility, developed in consultation with staff from the area municipalities.

Service to Major Generators - A listing of specific employment and residential concentrations, regional shopping centres, colleges and universities, and major recreational generators served by each option.

5. Staging - For each option, a possible first stage is suggested based on integration with other rapid transit facilities, peak point ridership demands, Official Plan objectives, and access to existing or potential yard facilities.

While the options can be ranked with respect to individual criteria in a fairly straight forward fashion, no criteria weights have been developed; that is, no formal method of trading-off specific criteria is used. A qualitative discussion of the policy implications of the various options follows in Section 5.3

5.2 Performance of the Rapid Transit Options

The major features of the four rapid transit options are summarized in tabular form in Exhibit 7. More detailed assessments are found in the various background reports, from which the information is derived.

5.3 Discussion of Policy Issues

5.3.1 Official Plans and Policies

Most of the area municipal Official Plans and the Metropolitan Plan do not have specific policies related to the location of new rapid transit facilities. The following discussion is derived from a combination of Official Plan policies, council resolutions and discussions with staff of the area municipalities.

Eglinton Option

The Eglinton option would support the policies of the Metro Official Plan. In East York, Council is on record as opposing the Eglinton option in order to maintain the present level of development along the corridor. Etobicoke favours an east-west transit alignment in the northern section of the municipality; it is not clear whether Eglinton would satisfy this objective, or whether a more northerly alignment would be preferred. Scarborough sees little development potential for the Eglinton corridor. York favours an Eglinton alignment, to serve an expanded Civic Centre area in the vicinity of Eglinton Avenue and Black Creek Drive. North York perceives Eglinton as serving existing development only, without providing significant additional development impetus. Toronto sees Eglinton as primarily serving the Central Area and, therefore, not consistent with City policy.

EXHIBIT 7

PERFORMANCE OF RAPID TRANSIT OPTIONS

	Base Case	Eglinton	Radial	Sheppard	Finch
Design					
Route Length	N.A.	30.5 km	39.5 km	33.0 km	36.2 km
Elevation - Elevated	N.A.	56.0%	65.8%	90.8%	76.0%
- At-Grade	N.A.	3.3%	23.2%	6.2%	10.2%
- Underground	N.A.	40.7%	11.0%	3.0%	13.8%
Stations	N.A.	26	31	19	21
Fleet Requirements					
Surface	1,624	1,452	1,456	1,473	
Rapid Transit - Existing	641	615	535	667	
- New	N.A.	185	350	205	
1991 Demand Estimates					
Peak Point Demand (1)	N.A.	7,100	13,000	10,300	
Total System Peak Hour Ridership	183,300	184,900	185,300	186,600	
Percent of Total Peak Hour Trips by Transit	30.7%	30.9%	31.0%	31.7%	
Peak Hour Transit Passenger Kilometres	1,855,000	1,891,000	1,883,000	1,940,000	
Average Transit Trip Length	10.12 km	10.23 km	10.16 km	10.40 km	
Transit System Impacts					
Bloor/Danforth Peak Point Demand (1)	33,000	30,300	26,800	31,700	
Yonge Peak Point Demand (1)	40,500	40,800	30,400	40,800	
Annual Vehicle Kilometres (Millions)					
Surface	104.9	93.3	94.0	94.7	94.7
Rapid Transit - Existing	83.0	79.5	69.4	86.4	86.4
- New	N.A.	26.4	48.4	33.5	32.4
Road System Impacts					
Elevated Route in Road R.O.W.	N.A.	16.4 km	15.2 km	25.2 km	None
Elevated Route in Road R.O.W. less than 36 m	N.A.	1.0 km	4.3 km	12.0 km	None
Cost, Millions (1982$)					
Total Capital Cost: Rapid Transit (2)	N.A.	$1,570	$2,040	$1,320	$1,500
Rapid Transit Capital Cost/Route Kilometre (2)	N.A.	$51.5	$51.6	$40.0	$41.4
Rapid Transit Capital Cost/Passenger Space (2)	N.A.	$0.20	$0.16	$0.13	$0.14
Rapid Transit Operating Cost - Existing	$122.3	$119.2	$109.3	$126.4	$126.4
- New	N.A.	$35.9	$52.7	$35.1	$37.0
Surface Transit Operating Cost	$217.7	$196.2	$194.8	$198.9	$198.9
Environmental Impacts	N.A.	Predominantly low in Etobicoke and Scarborough	Predominantly low.	Predominantly moderate.	Predominantly low.

Notes

N.A. - Not Applicable
(1) - Peak point demand includes 15% to account for heavy season peak hour ridership
(2) - Rapid transit capital costs relative to base case.

Central Radial Option

The Metro Official Plan states that council "shall not support construction of additional rapid transit lines into the Central Area"; however, the Official Plan does support the continued vitality and growth of the Central Area and recognizes its continued position as the major employment concentration in Metro. The Radial option could lead to intensification of development in Thorncliffe park, which East York currently has under review. York would support the Radial option, as a second priority after Eglinton, for the connections it provides to the Civic Centre from the west and south. Etobicoke, Scarborough, North York and Toronto are all opposed to the Radial option, as it serves the Central Area and runs counter to objectives regarding deconcentration.

Sheppard Option

The Sheppard option would meet the objectives of the Metro Official Plan. North York, Scarborough and Toronto all suppoort an east-west alignment north of Highway 401; Toronto has not indicated a preference for a specific alignment, Scarborough prefers Sheppard to Finch since it provides better service to existing and proposed development concentrations, and North York would prefer a combination of the Sheppard and Finch alignments. The positions of York, Etobicoke and East York are assumed to be neutral with respect to the Sheppard option.

Finch Option

The Finch option would be similar to Sheppard in its official plan and policy implications, although it would more directly relate to population and employment concentrations in Etobicoke than would Sheppard.

5.3.2 Waterfront ICTS Facility

As requested by the Economic Development and Planning Committee, the system-wide impacts of the proposed Waterfront ICTS have been considered in Background Report 6. Based on the anticipated levels of development in the waterfront area by 1991, it does not appear that a waterfront line is required on the basis of serving transportation demand. Nevertheless, increased levels of development in the post-1991 period could generate sufficient demand to justify this facility. Within the context of this study, no account has been taken of other valid objectives which would be satisfied by the facility, such as stimulation of devlopment and service to recreational attractions along the waterfront, such as Exhibition Place and Ontario Place.

Should implementation of a waterfront line proceed on the basis of Provincial, Metropolitan or municipal policy objectives, it will likely have a major impact on the existing transportation system. An independent waterfront facility linked only to Union Station would focus demand on the Yonge subway and through Union Station, where a transfer would be required; both of these facilities are expected to be at or above their practical capacity by 1991. It is therefore concluded that a waterfront line be considered only in conjunction with additional facilities (possibly line-haul) serving the downtown core and providing relief to the Yonge subway. Such a facility could be the portion of the radial option between the downtown core and the Danforth subway east of Broadview. While a more northerly alignment along Queen or King would more directly serve existing major employment concentrations, the ability to reduce transfer requirements at Union Station and to operate a continuous line from Exhibition Place to the Danforth subway would make an alignment south of Front Street the preferred option for such a relief facility.

5.3.3 Road System Impacts

From a policy viewpoint, a major issue is the potential impact of the surface transit option on the Central Area road system. The travel demand analysis indicates about an 8% increase in auto traffic into the Central Area on a system that is already congested at certain points. The surface transit option could require several arterial reserved lanes into or surrounding the Central Area, which can be expected to significantly contribute to further auto congestion. It is uncertain whether the Central Area road system can accommodate both projected increases in auto travel and the reserved transit lanes assumed in the surface transit option.

In suburban areas, the projected levels of surface transit demand justify the introduction of reserved transit lanes in a number of locations. However, based on the high projected growth in suburban auto travel, the effects of reserved lanes on future road traffic and the need for future road improvements will require detailed study on a corridor basis. The issue of priority for surface transit will be addressed as a part of the Metro Roads System Review and other on-going studies

5.3.4 GO Rail

The 1991 base case travel demand estimates indicate significant increases in GO Rail ridership between 1979 and 1991: 77% increase at the suburban cordon, and 63% at the railway cordon. Total inbound peak hour GO Rail trips at the railway cordon are projected to increase from about 10,700 to 17,400. Recent estimates of GO Rail capacity indicate that these increases can be accommodated with minor service improvements possible under existing physical and operating constraints, although at a reduced level of comfort particularly on the Lakeshore routes. The Province is currently examining the feasibility of electrification for GO Rail facilities, which implies a substantial increase in capacity. Given the growth in core-oriented trips from beyond Metro, substantial increases in GO

capacity could provide relief for congested TTC rapid transit facilities serving the Central Area and serve future development, although such capacity improvements would not be consistent with existing Metropolitan Official Plan policies.

5.4 **Overall Evaluation**

A comparative evaluation of the four rapid transit options is presented in Exhibit 8, under the criteria described above.

Exhibit 9 is a summary of the factors considered in the evaluation which rates the rapid transit options from "best" to "worst". The Radial option ranks "best" with respect to Demand, Rapid Transit System Impacts, Staging, Development Opportunities, and Service to Major Generators. The Finch option ranks "best" for Road System Impacts, Official Plan Compatibility, and Land Use Impacts. The Sheppard option scores "best" on Staging, Capital Costs, and Official Plan Compatibility. The Eglinton option ranks "best" with respect to Operating Costs. It should be noted that this simple ranking system does not attempt to indicate the degree to which one option may exceed another with respect to any of the criteria, nor does it weight the criteria.

EXHIBIT 8

EVALUATION OF THE OPTIONS

	Eglinton Option[1]	Radial Option[2]	Sheppard Option[3]	Finch Option[4]
1. 1991 Projected Peak Hour Passenger Demand				
- Peak Point Ridership	7100 (w. of Spadina Subway)	13,000 (e. of Union Station)	10,300 (e. of Yonge Subway)	10,300 (e. of Yonge subway)
- Total Usage	28,500	40,500	30,500	30,500
2. Operations				
- Rapid Transit Impacts	- negligible impact on Yonge/ University/Spadina - 10% decrease on Bloor-Danforth	- 25% decrease on Yonge - 12% decrease on University - 20% decrease on Bloor-Danforth	- negligible impact on Yonge/ University/Spadina - 3% decrease on Bloor-Danforth	- negligible impact on Yonge/ University/Spadina - 3% decrease on Bloor-Danforth
- Road System Impacts	- 16.4m r.o.w. affected - 1 km on road r.o.w. less than 36m	- 15.2m r.o.w. affected - 4.3 km on road r.o.w. less than 36m	- 25.2m r.o.w. affected - 12 km on road r.o.w. less than 36m	- does not use road r.o.w.
3. Land Use & Environment				
- Official Plan Compatibility	- positive: Metro, York - negative: N. York, Toronto, East York - neutral: Etobicoke, Scarborough	- positive: York - negative: N. York, Toronto, Scarb., Etobicoke, Metro - neutral: East York	- positive: N. York, Toronto, Etobicoke, Scarb., Metro - neutral: East York, York	- positive: N. York, Etob., Scarb., Metro, Toronto - neutral: East York, York
- Local Land Use Impacts	- predominantly low in Etobicoke & Scarborough - high impact between Keele & Laird if facility is elevated	- predominantly moderate - high impact from Queen St. E. to Greenwood & in Don Valley crossings	- predominantly moderate - high impact from west branch of Don to Bayview & in Humber crossings	- predominantly low - high in crossing of Humber & Don Valley & along CNR Uxbridge Line
- Development Opportunities				
High		- Toronto, North York	- North York	
Moderate	- N. York, York, Toronto, Scarb.	- York, East York	- Scarborough	
Low	- Etobicoke, East York	- Etobicoke	- Etobicoke	- Etobicoke, N. York, Scarb.

- Service to Major Generators	- York Civic Centre
	- Yonge/Eglinton Centre
	- Ontario Science Centre
	- Flemingdon Office Park
	- Kennedy/Eglinton Centre
	- High Density Residential at:
	  - Kipling & Islington Ave.
	  - Scarlett Road
	  - Jane Street
	  - Bathurst Street
	  - Yonge Street
	  - Wynford Drive
	  - Midland & McCowan Rd.
		- York Civic Centre
		- Exhibition Place & Stadium
		- Downtown (Union Station)
		- Thorncliffe Office Park
		- Ontario Science Centre
		- Flemingdon Office Park
		- Don Mills Shopping Centre
		- Duncan Mills Office Park
		- Fairview Mall Shopping Cr.
		- Seneca College
		- High Density Residential at:
		  - Kipling & Islington Ave.
		  - Scarlett Road
		  - Jane Street
		  - St. Lawrence Centre
		  - Thorncliffe Park
		  - Lawrence Avenue
		  - South of Highway 401
		  - Sheppard & Finch Aves.
			- Airport Office Park
			- North Yonge Centre
			- Fairview Shopping Centre
			- Consumers Rd. Office Pk.
			- Scarborough Town Centre
			- High Density Residential at:
			  - Dixon Road
			  - Jane Street
			  - Bathurst Street
			  - Yonge Street
			  - Don Mills Road
			  - Warden & Kennedy Rd.
				- Airport Office Park
				- York University
				- North Yonge Centre
				- Seneca College
				- Scarborough Town Centre
				- High Density Residential at:
				  - Dixon Road
				  - Weston Road
				  - Jane & Keele Street
				  - Bathurst Street
				  - Bayview Avenue
				  - Don Mills Road
				  - Warden Avenue
				  - Kennedy Road

4. Costs, Millions (1982 $)				
- Capital Total Length	- $1570	- $2040	- $1320	- $1500
- Increase in annual operating costs (over 1991 Base Case)	- $11.3	- $16.7	- $19.8	- $22.2
5. Preferred First Stage	- Spadina subway to Renforth Drive - Requires new yard - Serves York Civic Centre - 7100 peak hour riders at peak point - $700 Capital Cost	- Union Station to Danforth subway - Could use Greenwood yard - Serves Central Area - 6500 peak hour riders at peak point - $380 Capital Cost	- Yonge subway to Scarborough Town Centre - Could use McCowan yard - Serves North Yonge and Scarborough Town Centres - 10,300 peak hour riders at peak point - $420 Capital Cost	- Yonge subway to Scarborough Town Centre - Could use McCowan yard - Serves North Yonge and Scarborough Town Centres - 10,300 peak hour riders at peak point - $320 Capital Cost

[1] Renforth Drive to Bellamy Road (underground between Jane Street and Laird Drive)
[2] Renforth Drive to Finch Hydro R.O.W. via Eglinton Transportation Corridor, CN/CP rail corridor and Don Mills Road
[3] Renforth Drive to Scarborough Town Centre
[4] Renforth Drive to Scarborough Town Centre

EXHIBIT 9

SUMMARY OF EVALUATION

Criterion	Best		Worst
Demand	Radial	Finch/ Sheppard	Eglinton
Rapid Transit System Impacts	Radial		Finch/ Sheppard/ Eglinton
Road System Impacts	Finch	Radial/ Eglinton	Sheppard
Staging	Sheppard/ Radial	Finch	Eglinton
Total Capital Costs	Sheppard	Finch/ Eglinton	Radial
Operating Costs	Eglinton	Radial/ Sheppard	Finch
Official Plan Compatibility	Finch/ Sheppard	Eglinton	Radial
Land Use Impacts	Finch	Eglinton	Sheppard/ Radial
Development Opportunities	Radial	Sheppard	Finch/ Eglinton
Service to Major Generators	Radial		Sheppard Finch/ Eglinton

6.0 CONCLUSIONS

6.1 General Conclusions

The rapid transit options evaluated in this study fall into two basic categories: an east-west line and a radial line serving the Central Area which could also serve the Central Waterfront.

With respect to the east-west rapid transit options, based on the evaluation conducted in this study, the Eglinton option rates best for only one criterion - annual operating costs. While there appears to be some potential for a future rapid transit line west of the Spadina subway, possibly extending into Mississauga and/or the airport, the projected 1991 demands on the line east of Spadina could be served adequately with improved bus transit. In the west part of Metro, particularly across the Mississauga/Etobicoke boundary, large increases in automobile travel are projected, much of which could not physically be accommodated because of road network constraints. This implies that much of this travel will either use transit (if sufficient capacity and an attractive enough service is provided) or simply will not materialize due to conscious decisions regarding live/work relationships. While some of these projected auto trips could be expected to switch to an Eglinton line, the diversity of destinations suggests that a single rapid transit line is not the answer; rather many transit services would have to be improved through the implementation of reserved lanes and other transit priority measures if the 1991 projected travel demand is to be accommodated. These findings confirm the results of a recent interagency staff review coordinated by the Ministry of Transportation and Communications (MTC) known as the Mississauga/Metro Cross Commuting Study. Since it appears that it will not be possible to accommodate this expected growth in interregional travel, discussions with the Province and the Region of Peel should be initiated now to develop a strategy for dealing with future growth in travel.

The results of these discussions together with further analysis of the projected demand in this part of Metro and completion of the Metro Roads System Review in the next few months will help to clarify the need for and orientation of rapid transit lines crossing the west Metro boundary. At this time, however, it appears that further consideration of a major east-west line within Metropolitan Toronto should be confined to a corridor north of Highway 401.

The two options evaluated north of Highway 401 each have advantages and disadvantages. East of Yonge Street the Sheppard option is preferred to Finch for a number of reasons:

- provides direct service to the higher density southern end of the North Yonge Centre;
- provides service to the highly congested Consumers Road Office Park;
- serves more development opportunities along the corridor;
- lower total capital cost and capital cost per kilometre;
- lower annual operating costs.

However, in the western part of North York, the Finch corridor appears preferable since it would provide better service to York University and serve the Jane/Finch high density residential concentration and, if extended along Finch Avenue in Etobicoke, could serve the Albion Mall and the Humber College/Etobicoke General Hospital areas. A possible further extension southerly along Highway 27 could serve the proposed commercial concentration at Rexdale Boulevard and ultimately terminate at the airport. A likely transition between the Sheppard and Finch corridors would be in the vicinity of the Downsview Airport.

The radial line is the only option tested which alleviates the existing operating problems now being experienced on the Yonge subway south

of Bloor and at the Yonge/Bloor transfer station. In addition, the Don Mills portion of the line would serve the designated office parks in the Don Valley corridor and other significant traffic generators. This eastern half of the line has substantially higher estimates of peak hour ridership than does the western half.

The waterfront line has not been assessed in the same manner as the other lines. Options for a waterfront facility have been reviewed in the context of their impact on the existing subway system and their integration with a future radial line to the downtown. On the basis of evaluation criteria used in this study, the waterfront line does not rate as high as an east-west line north of Highway 401 or a radial line. However, because of the important regional activities located in the Central Waterfront, such as Exhibition Place, Ontario Place and the new convention centre and the development potential of Harbour Square, parts of Habourfront and the Railway Lands, it is recognized that a waterfront line could be justified. On the basis of this study, it is concluded that if such a facility is to be built, it should be connected to Union Station and in this event, for operational reasons, a radial line from the east should also connect to Union Station to provide a continuous line.

Assuming the Eglinton option can be eliminated from further consideration at this stage, the basic choice with respect to Metro's next rapid transit priority will be between an east-west line along Sheppard Avenue (or combination Sheppard/Finch) and a new radial line serving the Central Area, or some portion of either.

6.2 Major Trade-Offs

In considering the choice between an east-west line north of Highway 401 and a radial option serving the Central Area, the key criteria have been identified, and are discussed below.

Rapid Transit System Impacts

The 1991 base case demand analysis indicates that the Yonge subway will be severely congested, given assumed development levels. A key factor in the evaluation of rapid transit requirements will be the ability of the existing subway system to handle 1991 demand, particularly into the Central Area. While the current design capacity of the Yonge line is stated to be 37,800 passengers per hour, operation at this high ridership level results in a poor level of service and serious delays on a regular basis due to overcrowding. A practical capacity which would provide an acceptable level of service, taking into account fluctuations within the peak hour, would be approximately 33,000 passengers per hour. Comparison of peak point demands on the existing rapid transit system for the 1991 forecasts should consider the practical capacity limits of the system.

From an operational viewpoint, the TTC's preferred means of relieving this congestion would be a rapid transit relief facility connecting the downtown core and the Danforth subway east of Broadview. While the levels of excess transit demand could theoretically be accommodated by means of surface transit improvements, it is uncertain whether sufficient Central Area road capacity exists both to handle projected 1991 levels of auto travel and to allow for the implementation of reserved transit lanes assumed necessary for the required surface transit improvements. In any event, it is likely that an additional rapid transit facility serving the Central Area will be required after 1991, assuming that employment growth eventually exceeds the 60,000 level assumed in this study.

The Sheppard or Finch options appear to have a minimal effect on the existing rapid transit system relative to the 1991 Base Case, although station improvements may be required at the

Yonge subway interchange point. However, implementation of either of these options would not relieve congestion on existing rapid transit facilities in the Central Area.

Road System Impacts

Of the two east-west options north of Highway 401 which were analyzed, the Sheppard option would have a much greater impact on the existing road system than would Finch since the Sheppard option was assumed to run along a median in the middle of the road right-of-way and the Finch option assumed the Hydro right-of-way would be utilized. However, should an arterial road right-of-way be chosen, (either Sheppard or Finch) other designs should be investigated with a view to selecting a scheme which minimizes impacts on automobile traffic.

A radial option would tend to lessen road congestion in the Central Area by largely eliminating the need for permanent reserved lanes which would otherwise reduce road system capacity. It should be noted that the full radial option is not required to achieve significant capacity relief for the existing rapid transit system or to avoid decreasing capacity on the road system; the first stage of such a facility, linking the downtown core with the Danforth subway east of Broadview would be sufficient, and could function efficiently without further extension, carrying perhaps up to 10,000 passengers per hour.

Official Plan Compatibility

On the basis of Official Plan policies and objectives, an east-west line north of Highway 401 would best satisfy Metropolitan and area municipal objectives. The first stage of such a line along Sheppard Avenue East would meet the most immediate decentralization objectives by serving both the Scarborough Town Centre and the North Yonge Centre, and could be extended westerly in the future.

A full radial option is inconsistent with the Metro Official Plan and the plans and policies of four of the six area municipalities. The Metropolitan Plan, however, recognizes that the Central Area "will remain the pre-eminent centre for the Metropolitan Region, serving as the dominant focus of urban activity" (Section 4.B.1.) and it is the intent of the Plan "to provide adequate transportation services to support the employment growth of the Central Area. . ." (Section 6.B.2). It should be stressed that the transit capacity needs identified in this study would be satisfied by construction of just the first stage of the radial option - the relief line linking the Danforth subway and the downtown core. The provision of such a line may be acceptable in the context of current Official Plan policies, both City of Toronto and Metropolitan.

Inclusion of either option in the Metropolitan Official Plan would require amendments. Further detailed study would be required to meet both the requirements of the Environmental Assessment Act and the Official Plan approval process. These studies could be conducted concurrently with detailed feasibility studies of the options.

Cost

Both options have a high capital cost with the cost of the preferred first stages in the order of $400 million. Considering the expected Provincial contribution of 75% and the phasing of construction of the first stage over four years, the Metro share would be about $25 million per year (in 1982 dollars), an amount considerably below the level of capital spending on transit, in real terms, experienced during the 1960's and early 1970's. In fact, two rapid transit priorities are considered affordable, and could be accommodated either by extending the period of construction, to maintain a low annual capital requirement, or by

increasing Metro's annual capital expenditure to approximately $50 million.

With respect to annual operating costs, implementation of the Sheppard line east of Yonge Street would result in an increase of approximately $8.3 million annually, whereas implementation of the relief line would result in an increase of approximately $1.5 million annually. These annual operating costs would be partly offset by additional revenues obtained from new riders.

6.3 Rapid Transit Priorities

On the basis of a significantly higher 1991 estimated peak hour ridership and the ability to meet Metropolitan and area municipal objectives with respect to supporting the full development potential of the North Yonge and Scarborough Town Centres, the Sheppard/Finch corridor would be preferred as the next rapid transit line for Metropolitan Toronto. The first stage of such a line, routed along Sheppard Avenue, would link the North Yonge Centre with the Scarborough Town Centre, at a capital cost of approximately $420 million. This link by itself would represent a valuable addition to the rapid transit network.

However, for operational reasons, it appears that a rapid transit relief facility linking the downtown core and the Danforth subway east of Broadview will likely be required. The need and timing for this facility will be largely determined by three factors: the level and timing of Central Area employment growth; the ability of the existing subway system and GO Transit to serve a large proportion of the new trips to the Central Area; and the success of surface transit initiatives in providing relief for the subway system. Because of these uncertainties and the long lead time necessary for actual implementation of a rapid transit line, a detailed feasibility study of this relief facility should be initiated now. It should be noted that

the relief line would function efficiently without its extension north of Danforth. The estimated cost of the relief line is approximately $380 million.

In summary, the Sheppard and 'relief' line options serve different objectives, both of which are judged to be important. The Sheppard option serves moderate travel demands, meets transportation and land use objectives of the Metropolitan and area municipal Official Plans and promotes the development of the two designated major centres, while the radial option meets transportation capacity needs and maintains the growth potential of the Central Area. In this circumstance, and bearing in mind the uncertainties with respect to the Central Area, it is difficult to determine which is the higher priority. Furthermore, it is questionable whether either line would have to be in place by 1991. The Sheppard line has the higher estimated ridership (10,300 peak hour, peak direction), but this level could still be served by implementing further surface improvements on both Finch and Sheppard Avenues. However, continued development of the North Yonge and Scarborough Town Centres beyond 1991 together with various other development opportunities along the corridor (such as the Consumers Road Office Park) would ensure that significantly higher levels of ridership could be obtained. A decision to build the line prior to 1991 would therefore largely rest on achieving strategic planning and official plan objectives and on providing an improved level of transit service in the corridor. In the Central Area, surface improvements have the potential to accommodate the 6000-7000 riders (peak hour, peak direction) estimated to use a rapid transit relief line, but the success of these improvements will be dependent upon implementation of various priority measures which will impact adversely on other users of the road system. It should be recognized that surface improvements to and within the Central Area will have to be pursued in the immediate future in any event in view of the long lead time required to implement a rapid transit line.

It is therefore concluded that both of these rapid transit lines should be approved in principle and be pursued by proceeding immediately with independent feasibility studies. Because of the close relationship between a waterfront line and a relief line, it is also concluded that the proposed waterfront feasibility study (as proposed by the joint Task Force) should be undertaken together with the feasibility study for the relief line, and this study should include an assessment of possible westerly extensions of a waterfront line to the Bloor subway. By the time these studies are completed (in 18 to 24 months) the following new relevant information will be available:

1. more detailed assessment of costs and impacts of each line;
2. actual results of how surface transit improvements to and within the Central Area have performed;
3. results of the TTC study of capacity improvements to the existing subway system;
4. further understanding of the relationships between Central Area employment growth and travel to the Central Area;
5. results of the Metro Roads System Review and the implications for transit usage; and
6. assessment of the Official Plan implications of a rapid transit 'relief' line serving the Central Area.

All of the above information will provide a firmer basis for establishing the timing of further rapid transit construction within Metropolitan Toronto.

7.0 RECOMMENDATIONS

On the basis of the analysis conducted in this study, it is recommended that:

1. a rapid transit 'relief' line from Union Station to the Danforth subway in the vicinity of the Greenwood yards and an east-west line along Sheppard Avenue from the Yonge subway to the Scarborough Town Centre be approved in principle;

2. the Technical Transportation Planning Committee be authorized to undertake feasibility studies on the aforementioned two lines; the study of the 'relief' line to be combined with a feasibility study of the proposed Waterfront line from Union Station to Exhibition Place which would include an assessment of options for extending the line north-westerly to the Bloor subway;

3. the Toronto Transit Commission be:

   a) authorized to prepare a plan for the implementation of surface transit improvements to and within the Central Area, such plan to identify any required transit priority measures, and

   b) requested to report on the feasibility of implementing various measures to increase the capacity of the existing subway system;

4. Metropolitan Planning staff, in consultation with City of Toronto and Toronto Transit Commission staff, be authorized to develop a program to monitor employment growth and development proposals in the Central Area and to determine their effect on the transportation system;

5. the Commissioner of Planning be requested to report as soon as possible on the content and timing of amendments to the Metropolitan Official Plan and the requirements of the Environmental Assessment Act, in conjunction with the aforementioned recommendations; and

6. the Technical Transportation Planning Committee initiate discussions with officials of the Province and the Region of Peel with respect to developing a strategy for coping with future travel across the west Metro boundary.

8.0 APPENDIX A- RECENT RIDERSHIP TRENDS

As described in Background Report 2 - Demand Analysis, the travel demand model used in this study was calibrated for 1979. In other words, the travel relationships used to estimate both transit and auto ridership were based on 1979 conditions. However, betwen 1979 and 1981 significant increases in transit ridership were experienced which are not directly accounted for in the demand model and may be the result of changing conditions which will affect transit use.

Between 1979 and 1981, TTC total annual ridership increased by 13.2% from 346.2 million trips to 392 million trips; ridership in 1982 is budgeted at 407 million, a further increase of 3.8%. Of greatest interest is the increase in peak hour ridership, since this ridership component has resulted in increasing levels of congestion on existing facilities, particularly entering the Central Area. TTC subway peak point counts have recorded the following increase, based on the annual average of twelve monthly counts at each location:

Location/Direction	AM Peak Hour Increase 1979-1981
Rosedale-Bloor/SB	+13.9%
Bloor-Wellesley/SB	+18.6%
Sherbourne-Yonge/WB	+18.9%
Dupont-Spadina/SB	+19.5%
St. George-Museum/SB	+14.2%
Spadina-St. George/EB	+16.7%

It should be noted that while ridership has increased on a number of surface and subway routes, most additional ridership into the Central Area has been on the subway system. For example, the 1981 Metro

Cordon Counts indicate an increase of 4.9% in transit trips entering the downtown area (bounded by University, Jarvis, Davenport and Front/Esplanade). This lower percentage increase reflects relatively stable ridership on surface services serving the Central Area, which tends to lower the average increase. In addition, the Cordon Count is based on a one-day observation conducted during the late spring, a typically low ridership period. Based on the TTC counts, significant increases in peak hour ridership into the Central Area have occurred, with resultant increases in congestion levels on the subway system.

While it is difficult to accurately determine the specific causes of peak hour ridership increases in the Central Area, a number of factors have been identified which likely contribute to the increases and are discussed as follows:

Central Area Employment Growth

Although accurate employment estimates for the Central Area are not available on a year-to-year basis, the City Monitor records office floor space additions in considerable detail. These, along with published market vacancy rates, can be used to approximate increases in employment. In January 1976, office floor space in the Central Core south of Queen Street totalled 1,798,100 m^2, increasing in January 1978 to 2,199,800m^2, an increase of 22%. There were no recorded increases in office floor space in the area in 1978 or 1979, and small increases of 65,400m^2 (3% increase) in 1980 and 6,800 m^2 (0.3% increase) in 1981. However, the market vacancy rate in the Central Core south of Queen Street decreased from 15.4% in June 1977 to about 2% in December 1980. It appears that there was a lag of about two to three years between the time when the large office floor space increases occurred and the time that space was occupied. In fact, looking at the entire Central Area, occupied commercial floor space (accounting for

both increased available floor space and declining market vacancy rates) increased by about 8.4% between 1979 and 1981. In summary, it appears that office floor space constructed in 1976 and 1977 was occupied primarily after 1979, with ridership increases occurring at that time.

Gasoline Prices

Gasoline prices increased about 30%, in real terms between 1979 and 1981. The TTC ridership factors model indicates that gasoline prices alone account for approximately half of the ridership increases in the past two years. As noted in Background Report 2, the travel demand model sensitivity analysis estimates that a 25% increase in auto operating costs would increase Central Area rapid transit peak hour loads by 5% to 7.5%, which represents about 25% to 50% of peak hour subway ridership increases between 1979 and 1981. In summary, it appears that gasoline price increases alone account for as much as 50% of the increase in peak hour Central Area rapid transit ridership. It should be noted that increases of this magnitude, due to gasoline price increases, are not expected in the future based on the Federal-Alberta pricing agreement, annual ridership increases of about 1% due to rising gasoline prices (i.e. excluding other factors) are anticipated.

Parking Cost and Availability

The 1981 TTC Attitude Survey determined that 73% and 67% of respondents agreed, respectively, with the statements, "It costs too much to park" and "Finding parking is too difficult". More importantly, the number of respondents agreeing with these statements increased from 68% and 56%, respectively, in 1980. Although the Attitude Survey is not area specific, it is anticipated that these concerns will be more acute in the Central Area where parking is at a premium. Based on

information from the City of Toronto Public Works Department, it is estimated that average parking charges in the Central Area increased by 18.7% between 1979 and 1981, while the number of parking spaces declined by 5.3% in the same period. Assuming that some employment growth occurred during the period, the ratio of employees to parking spaces increased between 1979 and 1981, implying a greater difficulty in finding a parking space. While it is likely that this change in parking supply and price had a positive effect on peak hour Central Area transit ridership, it is difficult to estimate the extent of the increased due solely to this factor.

"New Direction" Initiatives

As a result of the 1979 "New Direction Study", a number of transit improvements designed to increase ridership were introduced in 1980 and 1981. Of these, Metropass appears to have the largest single impact on ridership, accounting for an estimated additional 8.2 million trips in 1981, or about 18% of the total TTC ridership increase. However, virtually all of these new trips are estimated to be in the off-peak, with negligible effect on peak hour Central Area rapid transit ridership. General service improvements, such as peak hour express service on bus routes feeding the subway are estimated to account for about 7% of the TTC ridership increase. While some of these trips are estimated to be additional peak hour Central Area rapid transit trips, they are likely accounted for more directly by other factors such as employment growth, gasoline prices, or parking cost and availability.

Other Factors

A variety of other factors influence TTC ridership, but are difficult to quantify. These include general economic

conditions over the past two years and the TTC advertising campaign which reinforces other factors contributing to transit usage.

In summary, it is difficult to quantify the reasons for increased peak hour Central Area rapid transit usage. It appears that increased gasoline prices have had the largest impact; while the high levels of ridership achieved should be maintained, further increases due to this factor are expected to be modest. The two other factors which appear to be significant, employment growth and parking cost and availability, will likely continue to affect peak hour Central Area ridership in direct proportion to changes in their values.

POOR

QUALITY

ORIGINAL